

WHAT IS CLAIMED IS:

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1. A replenishing developer, comprising: 1 wt. part of a carrier and 2 - 50 wt. parts of a toner, wherein the carrier is a magnetic fine particle-
- 5 dispersed resin carrier comprising at least inorganic compound particles and a carrier binder resin, and the toner has a weight-average particle size of 3 to 10 μm and contains 1 to 40 wt. % of solid wax.
- 10 2. A replenishing developer according to Claim 1, wherein the carrier binder resin comprises a thermosetting resin.
- 15 3. A replenishing developer according to Claim 1, wherein the carrier binder resin comprises at least a phenolic resin.
- 20 4. A replenishing developer according to Claim 1, wherein the carrier comprises a carrier core and a resin coating the carrier core.
5. A replenishing developer according to Claim 4, wherein the coating resin comprises a silicone resin.
- 25 6. A replenishing developer according to Claim 1, wherein the carrier has a volume-average particle

size of 15 to 60 μm .

8. A replenishing developer according to Claim
1, wherein the carrier has a true specific gravity of
5 2.5 to 4.5.

9. A replenishing developer according to Claim
1, wherein the carrier has a magnetization (σ_{1000}) as
measured at a magnetic field of $1000/4\pi$ kA/m of 15 -
10 $65 \text{ Am}^2/\text{kg}$ (emu/g), and a residual magnetization (σ_r)
of $0.1 - 20 \text{ Am}^2/\text{kg}$.

10. A replenishing developer according to Claim
8, wherein the carrier has a residual magnetization
15 (σ_r) of $0.1 - 20 \text{ Am}^2/\text{kg}$.

11. A replenishing developer according to Claim
1, wherein the carrier exhibits a flowability A in a
magnetized state and a flowability B in a de-
20 magnetized state, satisfying $B/A \leq 1.5$.

12. A replenishing developer according to Claim
11, wherein the carrier exhibits A and B satisfying
25 $B/A \leq 1.2$.

13. A replenishing developer according to Claim
1, wherein the carrier has a residual magnetization σ_r

(Am²/kg) and a volume-average particle size d (μm) satisfying:

$$1.0 \leq d/\sigma_r < 30.0.$$

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5 13. A replenishing developer according to Claim 1, wherein the carrier has a residual magnetization σ_r (Am²/kg) and a volume-average particle size d (μm) satisfying:

$$5.1 \leq d/\sigma_r \leq 12.3.$$

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14. A replenishing developer according to Claim 1, wherein the inorganic compound particles comprise magnetic particles containing at least one additive element selected from the group consisting of
15 magnesium, silicon, manganese and phosphorus.

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15. A replenishing developer according to Claim 14, wherein the magnetic particles contain said at least one additive element in a total amount of 0.03 -
20 5.0 wt. % of Fe.

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16. A replenishing developer according to Claim 15, wherein the magnetite particles contain at least one metal element selected from the group consisting
25 of zinc, copper, nickel, cobalt, aluminum, tin, titanium and zirconium in a total amount of 0.01 - 3.0 wt. % of Fe, and contain the additive element and the

metal element surface-exposed on the magnetite particles in a total amount of 0.01 - 1.5 wt. % of Fe.

- 115 17. A replenishing developer according to Claim
C⁵ 16, wherein the ^{magnetic} magnetite particles contain the
C additive element surface-exposed on the ^{magnetic} magnetite ^{based on}
C particles in a total amount of 0.01 - 0.5 wt. % of Fe.

- Sub 63 18. A replenishing developer according to Claim
10 15, wherein said at least one additive element is
divided into a first additive element of magnesium and
at least one second additive element selected from the
group consisting of silicon, manganese and phosphorus,
and said first additive element and said at least one
15 second additive element are contained in the magnetite
particles in a weight ratio of 1:9 to 9:1.

- 118 19. A replenishing developer according to Claim
1, wherein the inorganic compound particles have been
20 surface-treated with a lipophilizing agent.

- 119 20. A replenishing developer according to Claim
19, wherein the lipophilizing agent is a silane
coupling agent.

- 25 21. A replenishing developer according to Claim
4, wherein the carrier core comprise particles

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produced by polymerization of a polymerizable composition comprising the inorganic compound particles and a monomer providing the binder resin through the polymerization.

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¹²⁰
22. A replenishing developer according to Claim 1, wherein the toner comprises toner particles produced by polymerization.

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23. A replenishing developer according to Claim 1, for use in a developing method of developing an electrostatic latent image on an image-bearing member with a two-component developer comprising a toner and a carrier stored in a developer vessel while supplying the replenishing developer.

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24. A replenishing developer according to Claim 23, which is supplied in response to a toner consumption detected by detecting a toner concentration in the developer vessel.

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25. A developing method, comprising: developing an electrostatic latent image on an image-bearing member with a two-component developer comprising a toner and a carrier stored in a developer vessel, while supplying as required a replenishing developer to the developer vessel;

wherein the replenishing developer comprises
1 wt. part of a carrier and 2 - 50 wt. parts of a
toner, wherein the carrier is a magnetic fine
particle-dispersed resin carrier comprising at least
5 inorganic compound particles and a carrier binder
resin, and the toner has a weight-average particle
size of 3 to 10 μm and contains 1 to 40 wt. % of solid
wax.

10 26. A developing method according to Claim 25,
wherein the replenishing developer is supplied to the
developer vessel in response to a toner consumption
detected by detecting a toner concentration in the
developer vessel.

15 27. A developing method according to Claim 25,
using as the replenishing developer a replenishing
developer according to any one of Claims 2 - 22.

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